

*(Substitute Specification)***ELECTRICAL CONNECTOR FOR A SMALL ELECTRIC MOTOR****Background Art****1. FIELD OF THE INVENTION**

5 [0001] The present invention relates to small electric motors and connectors therefor. In particular, the present invention relates to small electric motors and gear train assemblies housed in moulded plastic and connectors therefor.

2. BACKGROUND TO THE INVENTION

10 [0002] Small electric motors are used in a wide variety of applications. For instance, small DC electric motors are used in toys, power tools and motor vehicles. In many high volume applications, moulded plastic or die cast metal parts are used to house small electric motors and associated gear trains. In such applications, the moulded plastic or die cast metal components are usually designed to allow the motor some freedom of movement with respect to its housing. This is done so that the bearings within the motor and elsewhere in the drive
15 train are not excessively loaded due to a lack of precision in the manufacture of such high volume components. Put another way, with moulded plastics, it is difficult to achieve the manufacturing tolerances normally required for gear trains and their bearings and, therefore, a common design solution is to allow the motor to be free to move to a small extent in relation to its housing. A problem with this design approach arises in relation to the electrical
20 connection to the motor.

[0003] One example of a small electric motor and gear train assembly can be found in automotive side or "wing" mirror assemblies. Electric motors are used to adjust the angle of the rear vision mirror with respect to the driver and are also used to park the mirror head with respect to the vehicle. In larger vehicle side mirrors, power telescoping mechanisms may be
25 employed in which a small DC electric motor is used to drive a mirror head out from the side of the vehicle. In all of these applications, small DC electric motors are typically employed that have two slots for receiving electrical connectors. These "female" connector terminals on the motors themselves provide for easy assembly. For instance, "male" terminals can be arranged to protrude from a housing for supporting the motor so that when a motor is installed